INDEX OF AUTHORS

VOLUME 20

A

Adragna, N. C. Changes in cation composition of aortic endothelial cells in culture 313
Afzelius, B. A. On the numbering of peripheral doublets in cilia and flagella 473
Akers, R. M. *see* Baumrucker, Deemer, Walsh, Riss and Akers 549
Albertine, K. H., Cerasoli, F., jr., Gee, M. H., Ishihara, Y., Tahamont, M. V., Gottlieb, J. E. and Peters, S. P. Morphological analysis of the activation of adherent neutrophils *in vitro* 519
Albertine, K. H. *see* Cerasoli, Gee, Ishihara, Albertine, Tahamont, Gottlieb and Peters 505
Alvarez, M. R. *see* Friedl, Alvarez, Johnson and Gratzner 933
Ambrose, N. C. and Riley J. Fine structural aspects of secretory processes in a pentastomid arthropod parasite in its mouse and rattlesnake hosts 381
Ambrose, N. C. and Riley, J. Studies on the host/parasite interface during the development of a pentastomid arthropod parasite in rodent intermediate hosts, with observations on protective surface membranes 721
Amsellem, J. and Clément, P. The muscle of a monogonont rotifer, *Trichocerca rattus*. II. The central retractor muscles 89
Anctil, M. *see* Germain and Anctil 701
Anderson, E., Selig, M., Lee, G. Y. and Little, B. An *in vitro* study of the effects of androgens on the cytoskeleton of ovarian granulosa cells with special reference to actin 855
Antonov, A. S. *see* Bystrevskaya, Lichkun, Antonov and Perov 493
Ashida, M., Ochiai, M. and Niki, T. Immunolocalization of prophenoloxidase among hemocytes of the silkworm, *Bombyx mori* 599
Ashton, M. L. *see* Khan, Ashton and Saleuddin 587
Azevedo, C. *see* Sousa and Azevedo 621

B

Baldwin, K. M. *see* Hakim, Baldwin and Bayer 51
Barrett, F. M. *see* Binnington and Barrett 405
Bartke, A. *see* Hikim, Bartke and Russell 63
Baumrucker, C. R., Deemer, K. P., Walsh, R., Riss, T. L. and Akers, R. M. Primary culture of bovine mammary acini on a collagen matrix 549
Bayer, P. E. *see* Hakim, Baldwin and Bayer 51
Bayraktaroglu, E., Whittle, A. C. and Golding, D. W. Neurosecretory cells with 'synaptoid perikarya' in *Helix*. A definitive description of secretory release from the somata of endocrine neurones 239
Bew, L. K. *see* Willott, Bew, Nagle and Wells 635
Billingsley, P. F. Morphometric analysis of *Rhodnius prolixus* Stal (Hemiptera: Reduviidae) midgut cells during blood digestion 291
Binnington, K. C. Ultrastructure of the peritrophic membrane-secreting cells in the cardia of the blowfly, *Lucilia cuprina* 269
Binnington, K. C. and Barrett, F. M. Ultrastructural localization of phenoloxidases in cuticle and haemopoietic tissue of the blowfly *Lucilia cuprina* 405
Bizios, R. *see* Chan, Bizios and Malik 13
Blanco, R. E. Glial cells in peripheral nerves of the cockroach, *Periplaneta americana* 771
Bovell, D. L. *see* Wilson, Elder, Sutton, Jenkinson, Cockburn, Montgomery, McWilliams and Bovell 691
Brain, J. D. *see* Valberg, Meyrick, Brain and Brigham 345
Brigham, K. L. *see* Valberg, Meyrick, Brain and Brigham 345
Büning, J. and Sohst, S. The flea ovary: ultrastructure and analysis of cell clusters 783
Burighel, P. *see* Martinucci, Dallai, Burighel and Lane 119
Butterworth, F. M., Emerson, L. and Rasch, E. M. Maturation and degeneration of the fat body in the *Drosophila* larva and pupa as revealed by morphometric analysis 255
Bystrevskaya, V. B., Lichkun, V. V., Antonov, A. S. and Perov, N. A. An ultrastructural study of centriolar complexes in adult and embryonic human aortic endothelial cells 493

C

Camatini, M. *see* Pascolini, Lorvik, Maci and Camatini 157
Castilho, F. *see* Machado, Castilho, Coimbra, Monteiro, Sá and Reis 797
Cavicchia, J. C. and Sacerdote, F. L. Topography of the rat blood-testis barrier after intratubular administration of intercellular tracers 577
Cavicchia, J. C. *see* Miranda and Cavicchia 611
Cerasoli, F., jr., Gee, M. H., Ishihara, Y., Albertine, K. H., Tahamont, M. V., Gottlieb, J. E. and Peters, S. P. Biochemical analysis of the activation of adherent neutrophils *in vitro* 505
Cerasoli, F., jr. *see* Albertine, Cerasoli, Gee, Ishihara, Tahamont, Gottlieb and Peters 519
Chan, K.-L., Bizios, R. and Malik, A. B. Thrombin enhances opsonized zymosan-induced chemiluminescence of neutrophils 13

Chang, P. H. *see* Mia, Oakford, Moore, Chang and Yorio 19
Chernoff, E. A. G. The role of endogenous heparan sulfate proteoglycan in adhesion and neurite outgrowth from dorsal root ganglia 165
Chopra, D. P *see* Chowdhury and Chopra 555
Chowdhury, A. and Chopra, D. P. Uptake and cellular transport of [11-^{3}H] All-trans-retinoic acid in the liver of vitamin A-deficient hamsters 555
Clark, W. H., jr. *see* Pillai and Clark 941
Clément, P. *see* Amsellem and Clément 89
Cockburn, F. *see* Wilson, Elder, Sutton, Jenkinson, Cockburn, Montgomery, McWilliams and Bovell 691
Coimbra, J. *see* Machado, Castilho, Coimbra, Monteiro, Sá and Reis 797
Coomans, A. *see* Van de Velde and Coomans 421
Coomans, A. *see* Van de Velde and Coomans 881

D

Dallai, R. *see* Martinucci, Dallai, Burighel and Lane 119
Deemer, K. P. *see* Baumrucker, Deemer, Walsh, Riss and Akers 549
Diglio, C. A., Grammas, P., Giacomelli, F. and Wiener, J. Rat heart derived endothelial and smooth muscle cell cultures: isolation, cloning and characterization 477
Ditrich, H. and Splechtna, H. Processing of colloidal gold particles in the glomerular mesangium and macula densa of the duck kidney 891
Dodson, M. V. and Mathison, B. A. Comparison of ovine and rat muscle-derived satellite cells: response to insulin 909
D'Orazi, G. *see* Scarpa, D'Orazi, Modesti, Valia, Zucco and Stammati 305
Doumit, M. E. *see* McFarland, Doumit and Minshall 899
Duncan, C. J. *see* Rudge and Duncan 249
Dzandu, J. K. *see* Wise, Oakford and Dzandu 219

E

Ehrlich, H. P. The modulation of contraction of fibroblast populated collagen lattices by Types I, II, and III collagen 47
Elder, H. Y. *see* McWilliams, Montgomery, Elder, Jenkinson and Wilson 109
Elder, H. Y. *see* Wilson, Elder, Sutton, Jenkinson, Cockburn, Montgomery, McWilliams and Bovell 691
Emerson, L. *see* Butterworth, Emerson and Rasch 255

F

Flores, V. *see* Lane and Flores 211
Forrester, J. V. *see* McIntosh, Muckersie and Forrester 193
Friedl, F. E., Alvarez, M. R., Johnson, J. S. and Gratzner, H. G. Cytometric investigations on hemocytes of the American oyster, *Crassostrea virginica* 933
Fristrom, D. The cellular basis of epithelial morphogenesis. A review 645

G

Garner, W. D. A. Elasmobranch tissue culture: *in vitro* growth of brain explants from a shark (*Rhizoprionodon*) and dogfish (*Squalus*) 759
Gee, M. H. *see* Albertine, Cerasoli, Gee, Ishihara, Tahamont, Gottlieb and Peters 519
Gee, M. H. *see* Cerasoli, Gee, Ishihara, Albertine, Tahamont, Gottlieb and Peters 505
Germain, G. and Anctil, M. Luminescent activity and ultrastructural characterization of photocytes dissociated from the coelenterate *Renilla köllikeri* 701
Giacomelli, F. *see* Diglio, Grammas, Giacomelli and Wiener 477
Golding, D. W. *see* Bayraktaroglu, Whittle and Golding 239
Gottlieb, J. E. *see* Albertine, Cerasoli, Gee, Ishihara, Tahamont, Gottlieb and Peters 519
Gottlieb, J. E. *see* Cerasoli, Gee, Ishihara, Albertine, Tahamont, Gottlieb and Peters 505
Grammas, P. *see* Diglio, Grammas, Giacomelli and Wiener 477
Gratzner, H. G. *see* Friedl, Alvarez, Johnson and Gratzner 933
Gupta, A. P. and Han, S. S. Arthropod immune system: III. Junctions in the hemocytic capsule of the German cockroach, *Blattella germanica* 629

H

Hakim, R. S., Baldwin, K. M. and Bayer, P. S. Cell differentiation in the embryonic midgut of the tobacco hornworm, *Manduca sexta* 51
Han, S. S. *see* Gupta and Han 629
Hazelton, S. R., Parker, S. W. and Spring, J. H. Excretion in the house cricket (*Acheta domesticus*): fine structure of the Malpighian tubules 443
Hazelton, S. R. *see* Spring, Parker and Hazelton 431
Herman, I. M. and Jacobson, S. *In situ* analysis of microvascular pericytes in hypertensive rat brains 1
Hidalgo, J. *see* Velasco and Hidalgo 567
Hikim, A. P. S., Bartke, A. and Russell, L. D. The seasonal breeding hamster as a model to study structure-function relationships in the testis 63
Hume, D. D. *see* Macintyre, Hume, Smith and McLachlan 331

I

Imahori, K. *see* Zs.-Nagy, Zs.-Nagy, Kitani, Ohta and Imahori 229
Ishihara, Y. *see* Albertine, Cerasoli, Gee, Ishihara, Tahamont, Gottlieb and Peters 519
Ishihara, Y. *see* Cerasoli, Gee, Ishihara, Albertine, Tahamont, Gottlieb and Peters 505

J

Jacobson, S. *see* Herman and Jacobson 1
Jarial, M. S. Fine structure of the Malpighian tubules of chironomus larva in relation to glycogen storage and fate of hemoglobin 355

Jenkinson, D. M. *see* McWilliams, Montgomery, Elder, Jenkinson and Wilson 109
Jenkinson, D. M. *see* Wilson, Elder, Sutton, Jenkinson, Cockburn, Montgomery, McWilliams and Bovell 691
Johnson, J. S. *see* Friedl, Alvarez, Johnson and Gratzner 933

K

Khan, H. R., Ashton, M. L. and Saleuddin, A. S. M. A study on the cytoplasmic granules of the pericardial gland cells of some bivalve molluscs 587
Kitani, K. *see* Zs.-Nagy, Zs.-Nagy, Kitani, Ohta and Imahori 229
Krupp, P. P. and Lee, K. P. The effects of dietary iodine on thyroid ultrastructure 79

L

Lane, N. J. and Flores, V. Actin filaments are associated with the septate junctions of invertebrates 211
Lane, N. J. *see* Martinucci, Dallai, Burighel and Lane 119
Larsen, E. *see* Mathi and Larsen 461
Larsen, W. J. and Wert, S. E. Roles of cell junctions in gametogenesis and in early embryonic development 809
Lee, G. Y. *see* Anderson, Selig, Lee and Little 855
Lee, K. P. *see* Krupp and Lee 79
Lehane, M. J. Size of secretory granules from midgut cells of the stablefly, *Stomoxys calcitrans* 763
Lichkun, V. V. *see* Bystrevskaya, Lichkun, Antonov and Perov 493
Little, B. *see* Anderson, Selig, Lee and Little 855
Lorvik, S. *see* Pascolini, Lorvik, Maci and Camatini 157

M

Machado, J., Castilho, F., Coimbra, J., Monteiro, E., Sá, C. and Reis, M. Ultrastructural and cytochemical studies in the mantle of *Anodonta cygnea* 797
Maci, R. *see* Pascolini, Lorvik, Maci and Camatini 157
Macintyre, J., Hume, D. D., Smith, J. and McLachlan, J. C. A microwell assay for anchorage independent cell growth 331
Malik, A. B. *see* Chan, Bizios and Malik 13
Maragoudakis, M. E., Panoutsacopoulou, M. and Sarmonika, M. Rate of basement membrane biosynthesis as an index to angiogenesis 531
Martinucci, G. B., Dallai, R., Burighel, P. and Lane, N. J. Different functions of tight junctions in the ascidian branchial basket 119
Masurovsky, E. B. *see* Miranda, Peterson and Masurovsky 179
Mathi, S. K. and Larsen, E. Patterns of cell division in imaginal discs of *Drosophila* 461
Mathison, B. A. *see* Dodson and Mathison 909
Matsuno, A. Ultrastructural differences between the anterior and posterior adductors of the strawberry cockle, *Fragum unedo* 283
McFarland, D. C., Doumit, M. E. and Minshall, R. D. The turkey myogenic satellite cell: optimization of *in vitro* proliferation and differentiation 899
McIntosh, L. C., Muckersie, L. and Forrester, J. V. Retinal capillary endothelial cells prefer different substrates for growth and migration 193
McLachlan, J. C. *see* Macintyre, Hume, Smith and McLachlan 331
McWilliams, S. A., Montgomery, I., Elder, H. Y., Jenkinson, D. M. and Wilson, S. M. Effects of stimulation on the ultrastructure and Na, K, Cl composition of the fundus of the rat plantar sweat gland 109
McWilliams, S. A. *see* Wilson, Elder, Sutton, Jenkinson, Cockburn, Montgomery, McWilliams and Bovell 691
Meyrick, B. *see* Valberg, Meyrick, Brain and Brigham 345
Mia, A. J., Oakford, L. X., Moore, T. M., Chang, P. H. and Yorio, T. Morphometric analysis of epithelial cells of frog urinary bladder II. Effect of ADH, calcium ionophore (A23187) and verapamil on isolated dissociated cells 19
Minshall, R. D. *see* McFarland, Doumit and Minshall 899
Miranda, A. F., Peterson, E. R. and Masurovsky, E. B. Differential expression of creatine kinase and phosphoglycerate mutase isozymes during development in aneural and innervated human muscle culture 179
Miranda, J. C. and Cevicchia, J. C. Junctional specializations in the seminiferous epithelium of an insect (*Triatoma infestans*): a freeze fracture and lanthanum tracer study 611
Modesti, A. *see* Scarpa, D'Orazi, Modesti, Valia, Zucco and Stammati 305
Monteiro, E. *see* Machado, Castilho, Coimbra, Monteiro, Sá and Reis 797
Montgomery, I. *see* McWilliams, Montgomery, Elder, Jenkinson and Wilson 109
Montgomery, I. *see* Wilson, Elder, Sutton, Jenkinson, Cockburn, Montgomery, McWilliams and Bovell 691
Moore, T. M. *see* Mia, Oakford, Moore, Chang and Yorio 19
Muckersie, L. *see* McIntosh, Muckersie and Forrester 193

N

Nagle, R. B. *see* Willott, Bew, Nagle and Wells 635
Neville, A. C. The need for a constraining layer in the formation of monodomain helicoids in a wide range of biological structures 133
Niki, T. *see* Ashida, Ochiai and Niki 599
Nishioka, Y. Tissue specific methylation of human Y chromosomal DNA sequences 875

O

Oakford, L. X. *see* Mia, Oakford, Moore, Chang and Yorio 19
Oakford, L. X. *see* Wise, Oakford and Dzandu 219
Ochiai, M. *see* Ashida, Ochiai and Niki 599

Ohta, M. *see* Zs.-Nagy, Zs.-Nagy, Kitani, Ohta and Imahori 229
Orekhov, A. N. *see* Tertov, Orekhov, Ryong and Smirnov 849

P

Panoutsacopoulou, M. *see* Maragoudakis, Panoutsacopoulou and Sarmonika 531
Parker, S. W. *see* Hazelton, Parker and Spring 443
Parker, S. W. *see* Spring, Parker and Hazelton 431
Pascolini, R., Lorvik, S., Maci, R. and Camatini, M. Immunoelectron microscopic localization of actin in migrating cells during planarian wound healing 157
Perov, N. A. *see* Bystrevskaya, Lichkun, Antonov and Perov 493
Peters, S. P. *see* Albertine, Cerasoli, Gee, Ishihara, Tahamont, Gottlieb and Peters 519
Peters, S. P. *see* Cerasoli, Gee, Ishihara, Albertine, Tahamont, Gottlieb and Peters 505
Peterson, E. R. *see* Miranda, Peterson and Masurovsky 179
Pillai, M. C. and Clark, W. H., jr. Hatching envelope formation in *Sicyonia ingentis* ova: origin and sequential exocytosis of cortical vesicles 941

R

Rasch, E. M. *see* Butterworth, Emerson and Rasch 255
Reis, M. *see* Machado, Castilho, Coimbra, Monteiro, Sá and Reis 797
Riley, J. *see* Ambrose and Riley 381
Riley, J. *see* Ambrose and Riley 721
Riss, T. L. *see* Baumrucker, Deemer, Walsh, Riss and Akers 549
Rudge, M. F. and Duncan, C. J. Ultrastructural changes in the cardiomyopathy of dystrophic hamsters and mice 249
Russell, L. D. *see* Hikim, Bartke and Russell 63
Ryong, L. H. *see* Tertov, Orekhov, Ryong and Smirnov 849

S

Sá, C. *see* Machado, Castilho, Coimbra, Monteiro, Sá and Reis 797
Sacerdote, F. L. *see* Cavicchia and Sacerdote 577
Saleuddin, A. S. M. *see* Khan, Ashton and Saleuddin 587
Sarmonika, M. *see* Maragoudakis, Panoutsacopoulou and Sarmonika 531
Scarpa, S., D'Orazi, G., Modesti, A., Valia, S., Zucco, F. and Stammati, A. Expression and synthesis of fibronectin and laminin by an intestinal epithelial cell line 305
Seifert, P. *see* Wunderer, Weber and Seifert 145
Selig, M. *see* Anderson, Selig, Lee and Little 855
Smirnov, V. N. *see* Tertov, Orekhov, Ryong and Smirnov 849
Smith, J. *see* Macintyre, Hume, Smith and McLachlan 331
Sohst, S. *see* Büning and Sohst 783
Sousa, M. and Azevedo, C. Fine structural study of the acrosome formation in the starfish *Marthasterias glacialis* (Echinodermata, Asteroidea) 621
Splechtna, H. *see* Ditrich and Splechtna 891
Spring, J. H., Parker, S. W. and Hazelton, S. R. Excretion in the house cricket (*Acheta domesticus*): ultrastructure of the ampulla and ureter 431
Spring, J. H. *see* Hazelton, Parker and Spring 443
Stammati, A. *see* Scarpa, D'Orazi, Modesti, Valia, Zucco and Stammati 305
Suárez-Quian, C. A. Differential cell surface expression of four lysosomal integral membrane protein (LIMPs) in normal rat kidney cells 35
Sutton, A. M. *see* Wilson, Elder, Sutton, Jenkinson, Cockburn, Montgomery, McWilliams and Bovell 691

T

Tahamont, M. V. *see* Albertine, Cerasoli, Gee, Ishihara, Tahamont, Gottlieb and Peters 519
Tahamont, M. V. *see* Cerasoli, Gee, Ishihara, Albertine, Tahamont, Gottlieb and Peters 505
Tertov, V. V., Orekhov, A. N., Ryong, L. H. and Smirnov, V. N. Intracellular cholersterol accumulation is accompanied by enhanced proliferate activity of human aortic intimal cells 849
Twort, C. and van Breemen, C. Human airway smooth muscle in culture 339

V

Valberg, P. A., Meyrick B., Brain, J. D. and Brigham, K. L. Phagocytic and motile properties of endothelial cells measured magnetometrically: effects of endotoxin 345
van Breemen, C. *see* Twort and van Breemen 339
van de Velde, M. C. and Coomans, A. Electron microscopy of the germ cells and the ovarian wall in *Xiphinema* (Nematoda) 881
van de Velde, M. C. and Coomans, A. Ultrastructure of the photoreceptor of *Diplolaimella* sp. (Nematoda) 421
Valia, S. *see* Scarpa, D'Orazi, Modesti, Valia, Zucco and Stammati 305
Velasco, A. and Hidalgo, J. Ultrastructural demonstration of proteoglycans in adult rat cornea 567

W

Walsh, R. *see* Baumrucker, Deemer, Walsh, Riss and Akers 549
Weber, G. *see* Wunderer, Weber and Seifert 145
Wells, M. A. *see* Willott, Bew, Nagle and Wells 635
Wert, S. E. *see* Larsen and Wert 809
Whittle, A. C. *see* Bayraktaroglu, Whittle and Golding 239
Wiener, J. *see* Diglio, Grammas, Giacomelli and Wiener 477
Wigglesworth, V. B. The source of lipids and poly-

phenols for the insect cuticle: the role of fat body, oenocytes and oenocytoids 919
Willott, E., Bew, L. K., Nagle, R. B. and Wells, M. A. Sequential structural changes in the fat body of the tobacco hornworm, *Manduca sexta*, during the fifth larval stadium 635
Wilson, S. M., Elder, H. Y., Sutton, A. M., Jenkinson, D. M., Cockburn, F., Montgomery, I., McWilliams, S. A. and Bovell, D. L. The effects of thermally-induced activity *in vivo* upon the ultrastructure and Na K and Cl composition of the epithelial cells of sweat glands from patients with cystic fibrosis 691
Wilson, S. M. *see* McWilliams, Montgomery, Elder, Jenkinson and Wilson 109
Wise, G. E., Oakford, L. X. and Dzandu, J. K. Ultrastructure of a transmembrane glycoprotein, glycophorin A 219
Wright, J. C. The tardigrade cuticle I. Fine structure and the distribution of lipids 745
Wunderer, H., Weber, G. and Seifert, P. The fine structure of the dorsal ocelli in the male bibionid fly 145

Y

Yorio, T. *see* Mia, Oakford, Moore, Chang and Yorio 19

Z

Zs.-Nagy, I. *see* Zs.-Nagy, Zs.-Nagy, Kitani, Ohta and Imahori 229
Zs.-Nagy, V., Zs.-Nagy, I., Kitani, K., Ohta, M. and Imahori, K. Possibilities and limitations of the smearing technique for cellular studies in compact tissues: a transmission electron microscopic analysis of liver smears. 229
Zucco, F. *see* Scarpa, D'Orazi, Modesti, Valia, Zucco and Stammati 305

INDEX OF SUBJECTS VOLUME 20

A

Acrosome, formation of, in the starfish *Marthasterias glacialis* 621
Actin, in rat brain pericytes 1
—, localization of, in migrating cells in planarian 157
—, study of the effects of androgens on the cytoskeleton of ovarian granulosa cells with special reference to 855
— filaments are associated with the septate junctions of invertebrates 211
Activation, of adherent neutrophils, biochemical analysis of 505
—, of adherent neutrophils, morphological analysis of 519
Adhesion, cell-substrate, of neurites 165
Alveoli, bovine mammary, primary culture of 549
Ampulla, excretory, of house cricket (*Acheta domesticus*) 431
Anchorage, -independent cell growth, a microwell assay for 331
Androgens, an *in vitro* study of the effects of, on the cytoskeleton of ovarian granulosa cells 855
Angiogenesis 193
—, rate of basement membrane biosynthesis as an index to 531
Angiogenin 531
Aorta, human, intimal cells of 849
Arthropod, pentastomid, fine structural aspects of secretory processes in, in its mouse and rattlesnake hosts 381
—, —, studies on the host/parasite interface during the development of, in rodent intermediate hosts, with observations on protective surface membranes 721
Ascidian branchial basket, different functions of tight junctions in 119
Autophagosomes, in fat body 255

B

Basal bodies, of cilia 119
Basal lamina, rate of biosynthesis of, as an index to angiogenesis 531
Basement membrane (*see* basal lamina)
Bioluminescence, of the coelenterate *Renilla köllikeri* 701
Bladder, urinary, epithelial cells of, effect of ADH, calcium ionophore (A23187) and verapamil on 19
Blood–brain barrier, in peripheral nerves of the cockroach *Periplaneta americana* 771
Blood–testis barrier, in an insect (*Triatoma infestans*), a freeze-fracture and lanthanum tracer study 611
— — —, rat, topography of, after intratubular administration of intercellular tracers 577
Brain, rat, hypertensive, *in situ* analysis of microvascular pericytes in 1
—, shark, explants of 759

C

Calcium, in bioluminescence of *Renilla* 701
— ionophore, A23187 19
Cardiomyopathy, of dystrophic hamsters and mice 249
Cation balance, of epithelial cells of sweat glands 691
Cell culture, intracellular cholesterol accumulation is accompanied by enhanced proliferative activity of human aortic intimal cells 849
— death, in fat body 255
— division, patterns of, in imaginal discs of *Drosophila* 461
— growth, anchorage independent, a microwell assay for 331
— rearrangement 645
— replication, retinal capillary endothelial 193
Cellulose microfibrils, helicoidal arrangement of 133
Centriolar complexes, an ultrastructural study of, in adult and embryonic human aortic endothelial cells 493
Chemiluminescence, zymosan-induced, of neutrophils 13
Chitin, and protein of peritrophic membrane of *Lucilia* 269
Cholesterol, intracellular, accumulation is accompanied by enhanced proliferative activity of human aortic intimal cells 849
Chromosomes, human Y, DNA sequences of 875
Cilia, and flagella, on the numbering of peripheral doublets in 473
Ciliary rootlets, in ascidian branchial basket 119
Circulatory system, an ultrastructural study of centriolar complexes in adult and embryonic human aortic endothelial cells 493
— —, changes in cation composition of aortic endothelial cells in culture 313
— —, intracellular cholesterol accumulation is accompanied by enhanced proliferative activity of human aortic intimal cells 849
— —, microvascular, in hypertensive rat brain 1
— —, rate of basement membrane biosynthesis as an index to angiogenesis 531
— —, thrombin enhances opsonized zymosan-induced chemiluminescence of neutrophils 13
Coelenterate, *Renilla köllikeri*, luminescent activity and

ultrastructural characterization of photocytes dissociated from the 701
Collagen, types I, II and III 47
— biosynthesis, in angiogenesis 531
— lattices, fibroblast-populated, modulation of contraction of 47
— matrix, primary culture of bovine mammary acini on a 549
Colloidal gold, processing of particles of, in the glomerular mesangium and macula densa of the duck kidney 891
Columnar cell, of embryonic midgut 51
Contraction, of fibroblast populated collagen lattices 47
Cornea, adult rat, ultrastructural demonstration of proteoglycans in 567
Cortical reaction, in *Sicyonia ingentis* ova 941
Crustacean, shrimp *Sicyonia ingentis*, hatching envelope formation in 941
Cuprolinic blue 567
Cuticle, insect, the source of lipids and polyphenols for: the role of fat body, oenocytes and oenocytoids 919
—, of blowfly *Lucilia cuprina*, ultrastructural localization of phenyloxidases in 405
—, tardigrade, fine structure and distribution of lipids in 745
Cystic fibrosis, the effects of thermally-induced activity *in vivo* upon the ultrastructure and Na K and Cl composition of the epithelial cells of sweat glands from patients with 691
Cytoskeleton, actin filaments are associated with the septate junctions of invertebrates 211
—, epithelial 645
—, of ovarian granulosa cells, an *in vitro* study of the effects of androgens on, with special reference to actin 855

D

Differentiation, cell, in the embryonic midgut of *Manduca sexta* 51
Digestion, of blood, in *Rhodnius prolixus* 291
Digestive system, embryonic midgut 51
DNA sequences, human Y chromosomal, tissue specific methylation of 875
Dynein, arms, in cilia and flagella 473

E

Echinoderm, starfish *Marthasterias glacialis* (Asteroidea), fine structural study of the acrosome formation in 621
Elasmobranch, tissue culture, *in vitro* growth of brain explants from a shark (*Rhizoprionodon*) and dogfish (*Squalus*) 759
Electrolytes, cellular, of aortic endothelial cells in culture 313
Electron probe, microanalysis of the fundus of the rat plantar sweat gland 109
Endocrine neurones, a definitive description of secretory release from the somata of 239
Endothelial cell, and smooth muscle cell cultures: isolation, cloning and characterization 477
— —s, aortic, changes in cation composition of, in culture 313
— —, human aortic, an ultrastructural study of centriolar complexes in 493
— —, phagocytic and motile properties of, measured magnetometrically: effects of endotoxin 345
— —, retinal capillary, prefer different substrates for growth and migration 193
Endotoxin, effects of: phagocytic and motile properties of endothelial cells measured magnetometrically 345
Epithelial cell line, expression and synthesis of fibronectin and laminin by an intestinal 305
— morphogenesis, the cellular basis of 645
Excretion, in the house cricket (*Acheta domesticus*): ultrastructure of the ampulla and ureter 431
Excretory/secretory components, in a pentastomid arthropod parasite 381
Excretory system, fine structure of the Malpighian tubules of *Chironomus* larva in relation to glycogen storage and fate of hemoglobin 355
— —, in the house cricket 431, 443
— —, processing of colloidal gold particles in the glomerular mesangium and macula densa of the duck kidney 891
Exocytosis, sequential, of cortical vesicles 941
Exoskeletons, monodomain helicoids in 133
Extracellular matrix, synthesis of fibronectin and laminin 305

F

Fat body, insect 919
— —, larval, of the tobacco hornworm *Manduca sexta*, sequential structural changes in 635
— —, maturation and degeneration of, in the *Drosophila* larva and pupa as revealed by morphometric analysis 255
Ferritin, cationized 219
Fibronectin 165
—, and laminin, expression and synthesis of, by an intestinal epithelial cell line 305
Flagella, and cilia, on the numbering of peripheral doublets in 473
Fluorescence recovery, after photobleaching 229
Freeze-fracture, of epithelial cell junctions 645
— —, and lanthanum tracer study, of junctional specializations in the seminiferous epithelium of an insect (*Triatoma infestans*) 611
— —, of ascidian branchial basket 119
— —, of invertebrate septate junctions 211
— —, of junctions in the hemocytic capsule of the German cockroach 629
— —, roles of cell junctions in gametogenesis and in early embryonic development 809

G

Gametogenesis, roles of cell junctions in 809
Ganglia, dorsal root, neurite outgrowth from 165

Germ cell clusters, in flea ovary, analysis of 783
— cells 809, 881
Glial cells, in peripheral nerves of the cockroach, *Periplaneta americana* 771
Glycogen, in fifth larval stadium of the tobacco hornworm *Manduca sexta* 635
— storage, fine structure of the Malpighian tubules of *Chironomus* larva in relation to 355
Glycophorin A, transmembrane glycoprotein, ultrastucture of 219
Glycoprotein, glycophorin A, ultrastructure of 219
Glycosaminoglycans, in adult rat cornea 567
Goblet cell, of embryonic midgut 51
Granulosa cells, ovarian, an *in vitro* study of the effects of androgens on 855
Growth cones 165
— factor, transforming 331
— kinetics, of endothelial and smooth muscle cells 477

H

Haemopoietic tissue, of the blowfly *Lucilia cuprina*, ultrastructural localization of phenoloxidases in 405
Heart, rat, -derived endothelial and smooth muscle cell cultures: isolation, cloning and characterization 477
Helicoids, monodomain, the need for a constraining layer in the formation of, in a wide range of biological structures 133
Hemocytes, of the American oyster *Crassostrea virginica*, cytometric investigations on 933
—, of the silkworm *Bombyx mori*, immunolocalization of prophenoloxidases among 599
Hemocytic capsule, of the German cockroach *Blattella germanica*, junctions in 629
Hemoglobin, fate of, fine structure of the Malpighian tubules of *Chironomus* larva in relation to 355
Heparan sulfate proteoglycan, role of, in adhesion and neurite outgrowth from dorsal root ganglion 165
Hepatocytes 229
Hormones, thyroid 79
—, androgens 855

I

Imaginal disc, morphogenesis 645
— —s, of *Drosophila*, patterns of cell division in 461
Immune response, of pentastomid arthropod parasite 381
— system, arthropod. III. Junctions in the hemocytic capsule of the German cockroach, *Blattella germanica* 629
Immunocytochemistry 305
—, an *in vitro* study of the effects of androgens on the cytoskeleton of ovarian granulosa cells with special reference to actin 855
—, of prophenoloxidases among hemocytes of the silkworm, *Bombyx mori* 599
—, of retinal capillary endothelial cells 193
—, the role of endogenous heparan sulfate proteoglycan in adhesion and neurite outgrowth from dorsal root ganglia 165
—, immunoelectron microscopic localization of actin in migrating cells during planarian wound healing 157
—, of four lysosomal integral membrane proteins 35
Immunofluorescence, in rat brain pericytes 1
—, of rat heart derived endothelial and smooth muscle cells 477
Innervation, of rotifer muscles 89
Insect, blowfly *Lucilia cuprina*, ultrastructural localization of phenoloxidases in cuticle and haemopoietic tissue of 405
—, cell differentiation in the embryonic midgut of the tobacco hornworm, *Manduca sexta* 51
—, *Chironomus* larva, fine structure of Malpighian tubules of, in relation to glycogen storage and fate of hemoglobin 355
—, cockroach *Periplaneta americana*, glial cells in peripheral nerves of 771
—, fine structure of the Malpighian tubules 443
—, flea ovary: ultrastructure and analysis of cell clusters 783
—, German cockroach *Blattella germanica*, junctions in the hemocytic capsule of 629
—, house cricket (*Acheta domesticus*), excretion in: ultrastructure of the ampulla and ureter 431
—, junctional specializations in the seminiferous epithelium of an insect (*Triatoma infestans*): a freeze fracture and lanthanum tracer study 611
—, *Lucilia cuprina*, ultrastructure of the peritrophic membrane-secreting cells in the cardia of the blowfly 269
—, maturation and degeneration of the fat body in the *Drosophila* larva and pupa as revealed by morphometric analysis 255
—, patterns of cell division in imaginal discs of *Drosophila* 461
—, *Rhodnius prolixus* (Hemiptera: Reduviidae), morphometric analysis of midgut cells, during blood digestion 291
—, silkworm *Bombyx mori*, immunolocalization of prophenoloxidases among hemocytes of 599
—, stablefly, *Stomoxys calcitrans*, size of secretory granules from midgut cells of 763
—, the fine structure of the dorsal ocelli in the male bibionid fly 145
—, tobacco hornworm *Manduca sexta*, sequential changes in the fat body of, during the fifth larval stadium 635
— cuticle, the source of lipids and polyphenols for: the role of fat body, oenocytes and oenocytoids 919
Insulin, comparison of ovine and rat muscle-derived satellite cells: response to 909
Intercellular junctions, in seminiferous epithelium of an insect (*Triatoma infestans*) 611
— —, in the hemocytic capsule of the German cockroach, *Blattella germanica* 629
— —, structure, functions and turnover of 809
Iodine, dietary, effects of on thyroid ultrastructure 79
Ionophore, calcium, A23187 19
Isozymes, creatine kinase and phosphoglyceromutase, during development in aneural and innervated human muscle culture 179

J

Junctions, gap, in muscles of a monogonant rotifer 89
—, intercellular, roles of, in gametogenesis and early development 809
—, septate, actin filaments are associated with 211
—, tight, in the ascidian branchial basket, functions of 119

K

Kidney, duck, processing of colloidal gold particles in the glomerular mesangium and macula densa of 891
— cells, normal rat, differential cell surface expression of four lysosomal integral membrane proteins (LIMPs) in 35

L

Laminin, and fibronectin, expression and synthesis of, by an intestinal epithelial cell line 305
Lanthanum, tracer 577, 611
—, — study, on seminiferous tubules of an insect 611
Lattices, collagen, modulation of contraction of 47
Leydig cells, of hamster testis 63
LIMPs, differential cell surface expression of 35
Lipid accumulation, in human aortic intimal cells 849
— droplets, in fifth larval stadium of the tobacco hornworm, *Manduca sexta* 635
—s, and polyphenols, for the insect cuticle, source of 919
—s, distribution of, in tardigrade cuticle 745
Liver, of vitamin A-deficient hamsters, uptake and cellular transport of 11-^{3}H All-trans-retinoic acid 555
— smears, possibilities and limitations of the smearing technique for cellular studies in compact tissues: a transmission electron microscopic analysis of 229
Lysosomes, integral membrane proteins of 35

M

Macula densa, of duck kidney, processing of colloidal gold particles in 891
Magnetometry, phagocytic and motile properties of endothelial cells measured by 345
Malpighian tubules, of *Chironomus* larva, fine structure of, in relation to glycogen storage and fate of hemoglobin 355
— —, of house cricket (*Acheta domesticus*), fine structure of 443
Mammary acini, primary cultures of, on a collagen matrix 549
Mantle, of *Anodonta cygnea*, ultrastructural and cytochemical studies on 797
Membrane, erythrocyte, glycophorin A in 219
— proteins, lysosomal integral, in normal rat kidney cells, differential cell surface expression of 35
—s, protective surface, during the development of a pentastomid arthropod parasite 721
Mesangium, glomerular, processing of colloidal gold particles in 891
Methylation, tissue specific, of human Y chromosomal DNA sequences 875
Microassay, for anchorage independent cell growth 331
Microfibrils, helicoidal arrangement of 133
Microtiter plates 505, 519
Microtubular doublets, in cilia and flagella, on the numbering of 473
Microvascular pericytes, *in situ* analysis of, in hypertensive rat brain 1
— system, in rat brain 1
Midgut, cells of the stablefly *Stomoxys calcitrans*, size of secretory granules from 763
—, embryonic, of the tobacco hornworm *Manduca sexta*, cell differentiation in 51
—, of *Rhodnius*, during blood digestion 291
Migration, cellular, during wound healing in a planarian 157
—, of retinal capillary endothelial cells 193
Mollusc, American oyster, cytometric investigations on hemocytes of 933
—, *Anodonta cygnea*, ultrastructural and cytochemical studies on the mantle of 797
—, neurosecretory cells with 'synaptoid perikarya' in *Helix* 239
—, strawberry cockle *Fragus unedo*, ultrastructural differences between the anterior and posterior adductors of 283
—s, bivalve, a study on the cytoplasmic granules of the pericardial gland cells of 587
Monodomain helicoids, need for a constraining layer in the formation of 133
Morphometry, maturation and degeneration of the fat body in the *Drosophila* larva and pupa as revealed by morphometric analysis 255
—, of epithelial cells of frog urinary bladder 19
—, of hemocytes of the American oyster 933
—, of muscle of a monogonant rotifer *Trichocerca rattus* 89
—, of *Rhodnius* midgut cells, during blood digestion 291
—, of secretory granules 763
Motility, of endothelial cells measured magnetometrically: effects of endotoxin on 345
Muscle, cardiac, ultrastructural changes in the cardiomyopathy of dystrophic hamsters and mice 249
—, culture, human, differential expression of creatine kinase phosphoglygerate mutase isozymes during development in aneural and innervated 179
—, -derived satellite cells: response to insulin of 909
—, obliquely striated, of a mollusc 283
—, of a monogonant rotifer, *Trichocerca rattus*. II. The central retractor muscles 89
—, smooth, and endothelial cell cultures: isolation, cloning and characterization 477
—, smooth, human airway, in culture 339
—, the turkey myogenic satellite cell: optimization of *in vitro* proliferation and differentiation 899
—, ultrastructural differences between the anterior and posterior adductors of the strawberry cockle, *Fragum unedo* 283
Muscular dystrophy, ultrastructural changes in the cardiomyopathy of dystrophic hamsters and mice 249

Myofilaments, of rotifer muscle 89
Myogenesis, satellite cell and 899

N

Nematode, *Diplolaimella* sp., ultrastructure of photoreceptor of 421
—, *Xiphinema*, electron microscopy of the germ cells and ovarian wall in 881
Nervous system, *in situ* analysis of microvascular pericytes in hypertensive rat brains 1
— —, neurosecretory cells with 'synaptoid perikarya' in *Helix*. A definitive description of secretory release from the somata of endocrine neurones 239
— —, peripheral, of the cockroach *Periplaneta americana*, glial cells in 771
— —, sensory, the fine structure of the dorsal ocelli in the male bibionid fly 145
— —, the role of endogenous heparan sulfate proteoglycan in adhesion and neurite outgrowth from dorsal root ganglia 165
Neurite, outgrowth from dorsal root ganglia, the role of endogenous heparan sulfate proteoglycan in adhesion and 165
Neurones, endocrine, in *Helex* 239
Neurosecretory cells, with 'synaptoid perikarya' in *Helix*. A definitive description of secretory release from the somata of endocrine neurones 239
Neurotransmitters, in bioluminescence of the coelenterate *Renilla köllikeri* 701
Neutrophils, adherent, biochemical analysis of the activation of 505
—, —, morphological analysis of the activation of, *in vitro* 519
—, zymosan-induced chemiluminescence in 13

O

Ocelli, dorsal, the fine structure of, in the male bibionid fly 145
Oenocytes 919
Oenocytoids 919
Ovary, flea, ultrastructure and analysis of cell clusters in 783

P

Parasite, pentastomid arthropod, fine structural aspects of secretory processes in, in its mouse and rattlesnake hosts 381
Pentastomid, arthropod parasite, studies on the host/parasite interface during the development of, in rodent intermediate hosts, with observations on protective surface membranes 721
—, fine structural aspects of secretory processes of, in its mouse and rattlesnake hosts 381
Pericardial gland, cells, of some bivalve molluscs, a study on the cytoplasmic granules of 587
Pericytes, microvascular, *in situ* analysis of, in hypertensive rat brain 1
Peripodial membrane, in imaginal discs of *Drosophila* 461
Peritrophic membrane, -secreting cells in the cardia of the blowfly *Lucilia cuprina* 269
Phenyloxidases, ultrastructural localization of, in cuticle and haemopoietic tissue of the blowfly *Lucilia cuprina* 405
Photocytes, of the coelenterate *Renilla köllikeri* 701
Photoperiod, in the seasonal breeding hamster 63
Photoreceptor, of *Diplolaimella* sp. (Nematoda), ultrastructure of 421
—s, dorsal ocelli 145
Pigment spot, photoreceptor, of a nematode, ultrastructure of 421
Pigments, ferritin-like, in mollusc pericardial gland cells 587
Pilocarpine, -stimulation of rat plantar sweat gland 109
Planarian, wound healing, localization of actin in migrating cells during 157
Polyphenols, and lipids, for the insect cuticle, source of 919
Pore canals, of insect cuticle 919
Prophenoloxidases, immunolocalization of, among hemocytes of the silkworm, *Bombyx mori* 599
Protein A-gold 567
—storage granules, in fifth larval stadium of the tobacco hornworm *Manduca sexta* 635
Proteoglycans, ultrastructural demonstration of, in adult rat cornea 567

R

Reproductive system, an *in vitro* study of the effects of androgens on the cytoskeleton of ovarian granulosa cells with special reference to actin 855
— —, electron microscopy of the germ cells and the ovarian walls in *Xiphinema* (Nematoda) 881
— —, fine structural study of the acrosome formation in the starfish *Marthasterias glacialis* (Echinodermata, Asteroidea) 621
— —, hatching envelope formation in *Sicyonia ingentis* ova: origin and sequential exocytosis of cortical vesicles 941
— —, junctional specializations in the seminiferous epithelium of an insect (*Triatoma infestans*): a freeze fracture and lanthanum tracer study 611
— —, roles of cell junctions in gametogenesis and in early embryonic development 809
— —, the seasonal breeding hamster as a model to study structure-function relationships in the testis 63
— —, topography of the rat blood–testis barrier after intratubular administration of intercellular tracers 577
Respiratory system, human airway smooth muscle in culture 339
Retinoic acid, uptake and cellular transport of, in liver of vitamin A-deficient hamsters 555
Rhabdomeres, of dorsal ocelli of male bibionid fly 145

S

Sarcoplasmic reticulum, of central retractor muscles of a monogonant rotifer 89
Satellite cell, the turkey myogenic, optimization of *in vitro* proliferation and differentiation 899
——s, ovine and rat muscle-derived: response to insulin 909
Sclerotization, in cuticle of blowfly *Lucilia cuprina* 405
Secretory granules, from midgut cells of the stablefly, *Stomoxys calcitrans*, size of 763
Seminiferous epithelium, rat, after administration of intercellular tracers 577
Septate junctions, of invertebrates, actin filaments are associated with 211
Sertoli cells, hamster 63
Shape changes, epithelial 645
Sodium, potassium, chloride composition of the fundus of the rat plantar sweat gland 109
Spermatogenesis, in starfish, fine structural study of acrosome formation in 621
Substrates, for growth and development, retinal capillary endothelial cells prefer different 193
Sweat gland, rat plantar, effects of stimulation on the ultrastructure and Na, K, Cl composition of the fundus of the 109
——s, from patients with cystic fibrosis, the effects of thermally-induced activity *in vivo* upon the ultrastructure and Na K and Cl composition of the epithelial cells of 691

T

Tardigrade, cuticle. I. Fine structure and the distribution of lipids 745
Testis, the seasonal breeding hamster as a model to study structure–function relationships in the 63
Thrombin, enhances opsonized zymosan-induced chemiluminescence of neutrophils 13
Thyroid, ultrastructure, the effects of dietary iodine on 79
Tight junctions, in the ascidian branchial basket, different functions of 119
Tissue culture, a microwell assay for anchorage independent cell growth 331
——, an *in vitro* study of the effects of androgens on the cytoskeleton of ovarian granulosa cells with special reference to actin 855
——, an ultrastructural study of centriolar complexes in adult and embryonic human aortic endothelial cells 493
——, biochemical analysis of the activation of adherent neutrophils *in vitro* 519
——, comparison of ovine and rat muscle-derived satellite cells: response to insulin 909
——, differential cell surface expression of four lysosomal integral membrane proteins (LIMPs) in normal rat kidney cells 35
——, differential expression of creatine kinase and phosphoglycerate mutase isozymes during development in aneural and innervated human muscle culture 179
——, elasmobranch, *in vitro* growth of brain explants from a shark (*Rhizoprionodon*) and dogfish (*Squalus*) 759
——, expression and synthesis of fibronectin and laminin by an intestinal epithelial cell line 305
——, human airway smooth muscle in culture 339
——, morphological analysis of the activation of adherent neutrophils *in vitro* 519
——, phagocytic and motile properties of endothelial cells measured magnetometrically: effects of endotoxin 345
——, primary culture of bovine mammary acini on a collagen matrix 549
——, rat heart derived endothelial and smooth muscle cell cultures: isolation, cloning and characterization 477
——, retinal capillary endothelial cells prefer different substrates for growth and migration 193
——, the role of endogenous heparan sulfate proteoglycan in adhesion and neurite outgrowth from dorsal root ganglia 165
— injury, acute, activation of adherent neutrophils in 519
Transmembrane glycoprotein, glycophorin A, ultrastructure of 219

U

Urinary bladder, frog, morphometric analysis of epithelial cells of, II. Effect of ADH, calcium ionophore (A23187) and verapamil on isolated dissociated cells 19

V

Verapamil, effect of, on epithelial cells of urinary bladder 19
Vitamin A, -deficient hamsters, uptake and cellular transport of retinoic acid in the liver of 555
Vitellogenesis, in flea ovary 783

W

Wound contraction 47
— healing, planarian, immunoelectron microscopic localization of actin in migrating cells during 157
— repair, in blowfly *Lucilia cuprina* 405

X

X-ray microanalysis, of epithelial cells of sweat glands 691

Z

Zymosan, -induced chemiluminescence, of neutrophils 13